

网叶马铃苣苔（苦苣苔科）的重新发现以及花的补充描述

张亚梅^{1, 2}, 郭世伟^{1, 2}, 陈文红¹, 税玉民^{1*}

(1.中国科学院昆明植物研究所东亚植物多样性和生物地理学重点实验室, 昆明 650201; 2.中国科学院大学, 北京 100049)

摘要: 花部形态是马铃苣苔属属下划分和种间界定的关键性状, 缺乏花器官的描述直接导致了一些存疑物种的存在。网叶马铃苣苔 (*Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li) 自 1956 年最后被采集到并于 1983 年发表, 由于没有花的特征, 在《中国植物志》、《中国苦苣苔科植物》和“Flora of China”均存疑, 但该种在随后的 60 余年间再无相关的采集记录。经过多年的跟踪调查, 2017 年作者在其模式产地重新发现并采集了带花的凭证标本。根据已经采集到具花标本, 我们确定这个种是个自然种, 并基于新收集到的材料, 补充描述了花的形态特征。网叶马铃苣苔的重新发现为探索其系统位置提供了重要的依据。

关键词: 补充描述, 花形态, 广义马铃苣苔属, 无量山

Rediscovery and conformation of *Oreocharis rhytidophylla* (Gesneriaceae) with supplementary description of flowers

ZHANG Yamei^{1,2}, GUO Shiwei^{1,2}, CHEN Wenhong¹, SHUI Yumin^{1*}

(1. Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, China; 2. University of Chinese Academy of Sciences, Beijing 100049, China)

Abstract: The flower morphological is a key trait for sub-division and inter-species definition of the *Oreocharis*. *Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li was last collected in 1956 and published in 1983, the species has no relevant collection records for the next 60 years. Due to the lack of flower morphological, there are doubts in “Flora of reipublicae popularis sinicae”, “Plants of Gesneriaceae in china” and “flora of china”. After years of follow-up investigation, *Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li was rediscovered in 2017 in it type locality. Due to the availability of the flowers during the rediscovery, we confirmed that the species should be considered as a natural species instead of doubtful one. The floral morphology of *Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li was supplemented based on the recent collections and photos. Its rediscovery provided an opportunity to explore its systematic position in the context of phylogeny in the future.

Key words: floral morphology, *Oreochris*, supplementary description, wuliangshan

The classification systems for *Oreocharis* were mainly based on flower morphological characters, the flower morphological characters of the genus are remarkably diverse, include the symmetry of corolla, the color of

基金项目: 国家自然科学基金 (31470306, 31000258) [Supported by the National Natural Science Foundation of China (31470306, 31000258)]。

作者简介: 张亚梅(1992-), 女, 白族, 云南洱源人, 硕士, 学生, 研究方向为生物地理和生物系统学, (E-mail) zhangyamei@mail.kib.ac.cn。

***通信作者:** 税玉民, 博士, 研究员, 研究方向为热带植物分类学、地理学和生态学, (E-mail) ymshui@mail.kib.ac.cn。

corolla, the shape of corolla, the number of stamen and staminodes (Wang et al, 1990, 1998, Li & Wang, 2004) . In the genus, it's very common that species share similar flowers but totally different leaves or share similar leaves but completely different flowers (Wang et al, 1990, 1998, Li & Wang, 2004). For example, *O. parviflora* Lei Cai & Z.K. Wu is most closely related to *O. henryana* Oliv. which shares flowers morphological, but the leaves are completely different (Cai et al, 2017). *O. purpurata* B.Pan, M.Q.Han & Yan Liu is similar to *O. pinnatilobata* (K.Y.Pan) Mich.Möller & A.Weber in leaf, but different in flower morphological (Han et al, 2017).

Oreocharis rhytidophylla C. Y. Wu ex H. W. Li had been doubtful in taxonomic treatment until its availability of the flowers in the field. The species was firstly described based on the type specimens without flowers and obviously diagnostic by the reticulate nerves on both sides of the rugose leaves (Li, 1983). Subsequently, it was excluded in the Chinese list of the genus *Oreocharis* in the publications and mentioned with a brief note of the above the gap of flower morphology (Pan, 1987, Wang et al, 1990, 1998, Li & Wang, 2004). We had gone to the type locality many times and contacted the staff of Wuliangshan National Natural Reserve in order to find it in the field since 2008. We didn't find it in the past ten years. But in 2017, we collected the specimens with flowers in our survey to the type locality (Jingdong County, Yunnan province, China). In the sight of the conservation, the species is very rare for its rediscovery after the recent discovery in 1956 indicated by the specimen (*P. Y. Qiu* 53376) (Li, 1983). Here, we supplementarily describe its floral characters and suggest to confirm its taxonomic position as a natural species in the expanded genus.

Oreocharis rhytidophylla C. Y. Wu ex H. W. Li in Bull. Bot. Res. 3(2): 9, photo 5. 1983; K. Y. Pan in Acta Phytotax. Sin. 25(4): 290. 1987.

Type

CHINA. Yunnan: Jingdong County, Wuliangshan Mt., Liandao River, the foot of Jiaoding mountain, 2 November 1956, *P. Y. Qiu* 53376 (holotype, KUN0484429!; isotype, KUN0548908!, PE00030857-60!).

Supplementary description of flowers

Inflorescences axillary, cymes 2–4, 2–4-branched, 4–16-flowered; peduncle densely long brown lanate, up to 14 cm; bracts 3, verticillat, 12–15 × 2.5–3 mm, abaxially brown lanate, adaxial glabrous. Calyx 5-parted near to base, lobes equal, oblong-lanceolate, 10–12 × 1.1–1.2 mm, margin integrate, apex obtuse, adaxial glabrous, abaxial brown lanate. Corolla yellow, 3.5–3.7 cm long, glabrous; corolla tube cylindric, 2.7–3 cm long, 5–6 mm in diam. adaxial lip 2-lobed, lobes equal, lobes oblong, 5–6 × 3.6–4 mm, apex round or obtuse, abaxial lip 3-lobed, lobes oblong, lobes nearly equal, 6–8 × 3–5 mm, apex round; stamens 4, included, adaxial anthers coherent in pair, abaxial anthers free, adaxial stamens 1.7–2 cm long, adnate to corolla tube 8–9 mm from base, abaxial stamens 1.6–1.8 cm long, adnate to corolla tube 1.4–1.5 cm from base; filaments white, slender, linear, densely glandular-pubescent; anthers oblong, 2-loculed, dehiscing broadwise; staminode 1, clavate, 0.5 mm long, adnate to abaxial side of corolla tube near base. Pistil 2.7–3.0 cm long, glandular pubescent; ovary linear with ridges, 1.7–1.8 cm long glabrous; style 1–1.2 cm long; stigma 1, disciform, retuse. Disc ring-shaped, yellowish, 2–2.1 mm high, margin slightly undulate with 5 irregularly and shallow lobes.

Additional specimens examined

CHINA. Yunnan: Jingdong county, Lingjie Town, Modaohe village, in broad-leaved forests, 24°24'57.17"N, 100°38'19.26"E, 2331 m a.s.l., in flowers, 30 August 2017, *S. W. Guo*. B2017-1083 (KUN!). The same place, 2200 m a.s.l., 12 January, 1939, *M. K. Li* 2936 (KUN 0208330!, KUN 075288!, KUN 075289!).

Distribution, habitat and phenology

Oreocharis rhytidophylla C. Y. Wu ex H. W. Li (Li, 1983) is only known in southern Yunnan and grows in evergreen and deciduous broad-leaved mixed forest, on moist rocks or cliffs at an elevation of ca. 2331 m. Flowering from August to September and fruiting from September to October.

Discussion

Oreocharis rhytidophylla is similar to *O. benthamia* var. *reticulata* Dunn in netted venation of leaves, but it differs from the latter by its adaxial surface strongly bullate of the latter species (Pan, 1987, Wang et al, 1990, 1998, Li & Wang, 2004). It is also similar to *O. hirsuta* Barnett and *O. yunnanensis* Rossini & J. Freitas in the corolla characters, but it differs from the latter by its anthers coherent in pairs and abaxial anthers free (Tan et al, 2013, Rossini & J. Freitas, 2014). It is also similar to *O. hekouensis* (Y.M.Shui & W.H.Chen) Mich.Möller & A.Weber in the elliptic leaf blade of larger calyx, but it differs from the latter in its obvious reticulate abaxial leaf surface (Chen & Shui, 2006, Möller et al, 2011).

Acknowledgement

We thank Managing Bureau of Jingdong Wuliangshan National Nature Reserve for supporting our work in the field.

References

- CAI L, HUANG H, DAO ZL, et al. *Oreocharis parviflora*, a new species of Gesneriaceae from northwestern Yunnan, China[J]. Phytotaxa, 2017, 329(2): 167–172.
- CHEN WH, SHUI YM, 2006. *Ancylostemon hekouensis* (Gesneriaceae), a new species from Yunnan, China[J]. Ann Bot Fenn, 43: 448–450.
- HAN MQ, PAN B, ZOU LL, et al, 2017. *Oreocharis purpurata*, a new species of Gesneriaceae from Hunan, China[J]. Phytotaxa, 328(2): 183–188.
- LI HW, 1983 Notulae De Gesneraceis Yunnanensibus[J]. Bul Bot Res, 3(2): 1–55.
- LI ZY, WANG YZ, 2004. *Oreocharis* Benth. [M]// Plants of Gesneriaceae in China. Zhengzhou: Henan Science & Technology Publish House: 14–47.
- MÖELLER M, MIDDLETON D, NISHII K, et al, 2011. A new delineation for *Oreocharis* incorporating an additional ten genera of Chinese Gesneriaceae[J]. Phytotaxa, 23: 1–36.
- PAN KY, 1987. Taxonomy of the genus *Oreocharis* (Gesneriaceae) [J]. Acta Phytotaxon Sin, 25: 264–293.
- ROSSINI J, FREITAS J, 2014. *Oreocharis yunnanensis*, a new name for the illegitimate *Oreocharis glandulosa* (Gesneriaceae) from China[J]. Phytotaxa, 163 (3): 180–180.
- TAN YH, LI JW, PAN B, et al, 2013. *Oreocharis glandulosa*, a new species of Gesneriaceae from southern Yunnan, China[J]. Phytotaxa, 131, 29–34.
- WANG WT, PAN KY, LI ZY, 1990. Gesneriaceae. [M]// WANG WT (Ed.) Flora Reipublicae Popularis Sinicae. Beijing: Science Press, 69: 190–203.
- WANG WT, PAN KY, LI ZY, et al, 1998. Gesneriaceae. [M]// Wu ZY, RAVEN PH. Flora of China. Science Press, Beijing & Missouri Bot Garden, St. Louis, 18: 268–272.

chinaXiv:201810.00262v1



Plate I Holotype of *Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li (KUN 0484429)



Note: **A.** Landform; **B.** Habitat; **C.** Plant; **D.** Adaxial leaf; **E.** Abaxial leaf; **F.** Apex of adaxial leaf; **G.** Lateral view of corolla showing the glabrous surface and calyx; **H.** Bird view of opened corolla showing the interior surface of corolla tube, stamens, filaments, staminode, free anthers and connection anthers (filaments: fi; staminode: st); **I.** Apex of abaxial leaf; **J.** Pistil with disc (pistil: pi; disc: di); **K.** Young pistil ; **L.** Front view of corolla showing the adaxial anthers free and abaxial anthers coherent in pairs (anthers: an). Scale bars: D, E=3 cm; F, G, H, I, J=2 cm; K, L=1 cm.

Plate II *Oreocharis rhytidophylla* C. Y. Wu ex H. W. Li (Photographed by Guo Shiwei)